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World trade via lakes route

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THE WAY TO THE SEA

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WORLD TRADE VIA LAKES ROUTE.

Comparison of Lakes-to-Ocean Ports and Channels with Main Traffic Routes to Europe's Chief Markets

BY DR. R. S. McELWEE

DIRECTOR BUREAU OF FOREIGN AND DOMESTIC COMMERCE

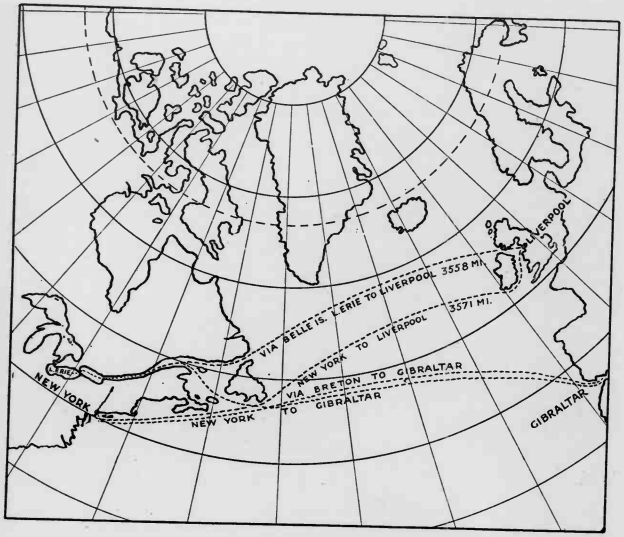
DEPARTMENT OF COMMERCER, WASHINGTON

ADDRESS BEFORE GREAT LAKES ST. LAWRENCE TIDEWATER CONGRESS

DETROIT, MICHIGAN, JULY 23, 1920

GREAT LAKES ST.-LAWRENCE TIDEWATER ASSOCIATION, SEPTEMBER 1920

Distances in Statute Miles



TO LIVERPOOL

Lakes to Ocean

From foot of Lake Erie_____3558
From Buffalo, all water_____3558
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From Chicago, all water____4431
From Duluth-Superior_____4527

Rail and Ocean

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TO GIBRALTAR

Lakes to Ocean

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From Buffalo, by water_____4056
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Rail and Ocean

New York to Gibraltar_____3653
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Feb 5, 1923.

World Trade Via Lake Route

What are the outstanding features in the development of the Great Lakes terminals when the St. Lawrence is opened and each port city on the Lakes finds itself faced with the problem of building the facilities to make it a seaport?

First: What type of merchandise will move? What kind of ships will come for it, and how large will these ships be?

Second: How should the terminals be laid out to accommodate these ships and merchandise?

Third: If the terminals are properly designed, according to modern lines, what saving can be accomplished thereby that can give the lake ports an advantage over the old-established Atlantic ports? Next, what are some of the chief items of expense at these Atlantic ports? Although not directly connected with the problem of terminals, what are the chances of developing a thriving coastwise commerce, and what are some of the underlying principles involved?

A Way for Ocean Ships

Consider then the first question: What ships will come into the Great Lakes from the ocean? We may stop a moment to correct the fallacy that some people persist in announcing; and that is that lake ships will not stand the long waves of the ocean. No one asked them to. Lake ships will continue their thriving ore and coal business as at present. We are interested here in ocean-borne commerce, and ocean-borne commerce is carried in ocean ships.

How many of these ships will be able to get past the limiting 26 feet in the St. Lawrence, the Welland, and into Lake Erie, and the 21 feet from the mouth of the Detroit River into the rest of the Lakes? The United States Shipping Board has compiled some interesting figures that are most encouraging. Although averages do not do us very much good, because we are faced with definite limits of 21 and 26 feet, and not by an average, it is interesting to note that in the period from 1914 to 1918 the *average draft* of 1,343 cargo vessels was 23 feet, while in the period from 1909 to 1915, 1,120 cargo vessels averaged 21.7 feet. In the period before this, from 1904 to 1908, 1,082 vessels averaged 21.6 feet. Therefore, the average draft of large numbers of new vessels about coincides with the critical point of available draft at the present time on the Great Lakes.

Suitable Vessels Not Lacking

But the Shipping Board investigation gives us some other figures. While there are only 155 vessels of 10,000 gross tons and over, there are 3,574 ocean-going steam vessels of 2,000 to 6,000 gross tons, and the drafts of these 3,574 steam vessels are from 20.1 feet to 25.4 feet loaded. Therefore, even with vessels of existing types and tonnage, the larger proportion of the world's cargo vessels, fully loaded, can enter the Great Lakes without difficulty to the mouth of the St. Clair River, and many of them loaded to capacity can enter the upper lakes.

Cargoes Not Lacking

A large majority of the vessels may load full at the upper lake ports. Even the larger cargo vessels may load part cargo at the upper lake ports and take on the rest of their cargo at large manufacturing centers on Lake Erie and Lake Ontario. In fact, this system will give an excellently balanced cargo, because the grain products of the great northwest loaded at the head of the lakes will make the proper hold cargo by weight, and manufactured products, much of it measurement freight, loaded between decks at lower lake ports will fill out the load. Even without deepening the St. Mary's and Detroit-St. Clair Rivers, most of the cargo tonnage of the world can come into the great lakes when they are opened by removing the barrier.

Channels Not Lacking

We say ocean cargo vessels *can* come into the Great Lakes but will they *want* to do so? The idea prevails in some quarters that ocean-going vessels do not want to work their way at slow speed through the canals and lockages of the proposed St. Lawrence project and the New Welland Canal, because owing to the high cost of operation of ocean vessels, an average of $2,000 to $3,000 per day, including interest and depreciation, it would be more economical to barge down to tide water in inexpensive inland waterway vessels and tranship to the ocean carrier. In fact, this was my own snap judgement of the situation and I began my own study of the project with this prejudice. My close study of the many angles of the problem during the past year has changed my mind on this point. A few comparisons with the other ship canals of the world may help us.

Better Than Manchester

In the first place, the confined channel and locks of the St. Lawrence and the new Welland Canal will total about fifty miles, probably several miles less. Wide river navigation, when the channels are well lighted, offers no particular obstacle to ocean vessels. Bearing in mind this fifty miles of restricted waterway, we find that 5,000,000 tons of shipping every year are willing to pass by Liverpool and go up 35½ miles of canal and through five sets of canal locks in order to reach the one city of Manchester. By entering the Great Lakes a vessel could reach numerous Manchesters and have a choice of any one of them. It is fair to assume that with adequate port facilities, at least 5,000,000 tons could be induced to work through fifty miles of canal and locks to enter the great Lakes to reach a far bigger prize than that at the end of the Manchester Ship Canal. Incidentally, the Suez Canal is about 100 statute miles long, or 87 nautical miles. The Panama Canal is fifty miles long. All of this, however, is not canal navigation.

More Useful Than Kiel

The best illustration for our argument is the Kiel Canal. The Kiel Canal is 61 miles long. It is used, not to reach an otherwise inaccessible place, but only to save distance, and only a few hundred miles out of 1,400 at that. The Baltic was not opened to ocean navigation by the Kiel Canal. Since the dawn of history the Baltic was opened to navigation around Jutland through the Skagerack and Kattegat. For instance, the port of Riga from London is 988 miles through the Kiel Canal and 1,400 miles through the Skagerack, a saving of 412 miles. In normal times most vessels prefer to go through the 61 miles of the Kiel Canal and pay the dues rather than take the longer trip around Jutland, in order to save only 400 miles of steaming. If vessels going from London and other channels and north seaports to Baltic ports will pass through 61 miles of canal in order to save 400 miles in distance, would they not be willing to pass through 50 miles of canal that is the only avenue of entry and will give access to 2,700 miles of coast dotted with rich and productive industrial cities? Petrograd is just about as far from London as Duluth or Chicago is from Montreal. The reply then to our second query, "Will ocean ships enter the great lakes?" must be very strongly in the affirmative. According to all that other ship canals of the world can show us this would be the case.

Ports Readily Developed

What kind of ships will we have to accommodate? As before mentioned, the lake ports will continue to ship bulk freight in lake vessels. We should eliminate them from consideration in this connection. The vessels to be accommodated fall into two different types: Side-port loading coastwise and hatch-loading vessels. The American coastwise and lake package carrier is, as a rule, a single-deck, side-port loading craft, while ocean-going vessels, almost without exception, are constructed with a high freeboard and are loaded through hatchways in the upper deck. The methods and machinery for loading and discharging these two different types of vessels are quite different. There are accommodations on the Great Lakes for package freight vessels of the side-port variety, albeit very antiquated and inade-

quate ones. There are no port facilities whatsoever for ocean-going hatch-loading vessels. This is the greatest blessing in disguise that can be imagined, because the lake ports can start from the beginning, unhandicapped by existing structures or habits of mind, to make their ports the most modern in the world. The advantage of starting with a clean slate in the building of modern ocean ports on the Great Lakes is illustrated by a remark of Dock Commissioner Murray Hulbert, in the Staten Island pier controversy, when he said: "The steamship companies are satisfied with the present equipment and do not desire more machinery installed."

Depths are Sufficient

The controlling depth of 21 feet in the ports of the Great Lakes would seem at first to be a hopeless handicap to Great Lakes commerce, but if we consider the Black Sea and Mediterranean ports, it will be seen that Odessa only has 24 feet of water along the newer quays, Novorossisk 26 feet, and Rostof on the Don only 18 feet. In the Baltic, Petrograd has only 19½ feet, Riga, 23 feet, Libau 27½ feet and Copenhagen 30. Even Constantinople has only 22 feet along the new wharves and less than that at the old ones. It will therefore be seen that for all the Great Lake ports even 21 feet will compare favorably with the famous ports of the Baltic, Mediterranean, and Black Sea, these areas being comparable in geographical locations with the Great Lakes when these are opened to the sea. The new channel as projected for immediate needs will admit ships drawing 25 feet of water as far as the entrance to the Detroit River and 21 feet beyond that. Provision should be made in all permanent works to allow a progressive deepening to 30 feet. A study of the map shows Oswego, Rochester, Buffalo, Erie, Cleveland and Toledo are located very near to deep water, although the old port channels in the rivers are only 21 feet or less in depth. It would be a simple matter to dredge for a very short distance, in most cases less than a mile, to make a site for the new ocean steamship wharves capable of accommodating vessels of 25 feet draft. In other words, we must not think so much of rebuilding the old lake ports as they are, but of going out near to deep water and constructingmodern terminals.

COASTWISE TRADE

In normal times the United States has a large coastwise trade. The opening of the Lakes will add 2,700 miles of coastline, the larger part of which is American Coastline, the rest being Canadian. But our doubter looks at the map and says: "Why in the world would anyone want to ship by water way out around the St. Lawrence and down the Atlantic Coast, or to the Gulf, when it is such a short distance overland by rail from most any of the American Lake ports? You never would do it in the world."

Europe affords another analogy. Viewing Montreal, New York, London, and Gibraltar as four points from which radiate steamship lines, we find some very interesting comparisons. For instance, the distance between Gibraltar and London is 1,351 miles, and from New York to Montreal is 1,459 miles, or 108 miles more. We may argue this way; before the war, before Europe got all cracked up, it was the usual thing to ship goods from London to Genoa, or from London to the Baltic ports by water and not by rail. We find the steaming distance from London to Gibraltar is 1,351 nautical miles, thence 860 nautical miles to Genoa, a total of 2,211 nautical miles, or about 2,500 land miles. The distance from New York to Montreal is 1,460 nautical miles, plus 1,082 nautical miles to Chicago, or 2,542 nautical miles or about 3,000 land miles. In this particular case the distance from New York to Chicago would be about 500 land miles farther than from London to Genoa. From London to Genoa by rail, that is from Calais by rail, would be about the same distance as from Chicago to New York by rail. The water distance is about 2½ to 3 times the rail distance, and yet it is not customary to ship from London to Genoa by rail, but by water. From London to Constantinople by rail is 2,176 land miles, and from London to Gibraltar and thence to Constantinople by water is 3,175 nautical miles, or about 3,800 statute miles. Regardless of a saving by rail of 1,600 to 1,700 miles the main freight traffic is by water around through Gibraltar and not by rail. Whether you take Hamburg, or Havre, or Antwerp or London as the starting point, our European analogies will indicate that rather than ship overland by rail all of these points ship to the Mediterranean, even twice as far, by water.

Water Carriage Preferred

Thereupon the opponent in the discussion comes back and says, "Yes, but Europe is divided up by many different nations and frontiers, while we are all one nation. We have no such barriers in America as Europe has interfering with the free movement of freight." This sounds reasonable enough, but from the Free Port of Hamburg before the war, cars went to most of the European countries from the free zone by sealing the cars and sending them through in bond. They went through country after country, except Russia, just as easily as they would through the United States. If Europe ships out and around by water, rather than across by rail, why not through the Great Lakes-St. Lawrence?

New England Isolated

We may be a homogenous people, except for the two political parties once in every four years, but when it comes to transportation we are not homogenous. Everything east of the Hudson River line, Lake George and to Lake Champlain, is almost completely cut off from the rest of the United States so far as transportation is concerned. There are three cross-overs into New England; The cross-over

at Albany, the little bit of a bridge at Poughkeepsie, and then there is the port of New York. Now the railroads crossing at Albany are insufficient; the bridge at Poughkeepsie is also quite insufficient to handle the traffic to New England. That leaves the third link, the car-float connection at the port of New York to join New England with the rest of the United States. It is perfectly obvious that if freight has to pass through New York in order to get to New England, New England is going to be worse off than New York itself, where the freight has only to pass into the most congested traffic area of the country, instead of clear through it, to get to New England. This is the actual case today. The strikes and congestions for fifty miles west of the port of New York, through which hardly anything can pass at the present time, is a heavy blow to all transportation to New England. Not only are the New England ports more advantageously situated than New York with respect to the St. Lawrence entrance to the Great Lakes, but New England industries have suffered so greatly from the transportation collapse in and about New York and are so completely cut off by the Valley of the Hudson River, that New England's only hope of relief is a coastwise trade from its ports to the Lake ports, similar to that of English and continental ports to the Baltic and Black Seas.

Benefit to Railways

The coastwise trade is not one of choice, but of necessity, and unless vast transportation changes be made, such as bridges across the Hudson and new railroad lines, which in their totality will cost more than the entire St. Lawrence project, New England faces industrial and economic stagnation. Coastwise trade between New England and the Great Lake ports will not be altogether one-way traffic, although the west bound movement will be the lighter. As New England is a heavy consumer of raw materials for its factories, and food for its workers, giving in return manufactured goods of much less volume, the westbound car movement consists of 40 to 60 empties out of every 100 cars. Shipping the food and materials to New England by Lake-Atlantic coast-wise vessels would benefit the railroads by relieving them of the one-way haul and save New England from the threatened famine faced more or less acutely most of the time. With modern methods and equipment at the terminals, with proper warehousing, it will be possible to get the best out of the 215 days of open navigation.

In extreme transportation conditions such as those with which the country is confronted at the present time, it may be profitable to extend the Lake-Atlantic Coast commerce coastwise out of New England, even into the Gulf of Mexico to Mobile and Galveston. New Orleans should ship to and from Chicago by barge on the Mississippi. The probable benefit to the nation, through the possible coastwise commerce, can not be lightly set aside.

PORT CONDITIONS

The extent to which saving through absolutely modern water terminals would benefit lake ports may be illustrated by taking some of the costs of doing business through the port of New York.

Three classes of people pay directly: (1) The Steamship Company, (2) The Railroad, and (3) The Shipper. Ultimately the consumer pays it all, if he can afford to buy the merchandise.

Before the war it was the rule at the port of Hamburg to turn around a small cargo vessel of 5,000 to 8,000 tons in four to five days. During the last two or three years the average time for a turn-around at New York, except for old established lines operating on a larg secale with a trained personnel, has been from ten to twenty days. During that time there have been several heavy, prolonged strikes, that have kept vessels in port several weeks. At the present time there are about 400 vessels lying at anchor at Norfolk, waiting for coal and cargo, and more than fifty of them waiting for fuel oil, because of the congestion, car shortage, and strikes on the railroads. At Baltimore there are 200. The sudden overflow from New York swamped existing facilities. Port equipment should keep ahead of the demand, not lag behind, otherwise the first overload will stop the whole works. When it is considered that a vessel of the type that would enter the Lakes suffers a loss of about $2,000 to $3,000 for every idle day, not counting the loss in earning power, but in actual interest, depreciation, insurance, operation, and direct overhead expenses, the matter of a few idle days is a very serious one.

New York, Baltimore and Norfolk are not the only ports that show excessive waiting time in recent months. William F. Doty, American Consul at Cardiff, Wales, on March 11, 1920, reported that 40 vessels at Cardiff waited an average of ten days each for a berth after the coal was released, and waited an average of thirteen days after shippers declared the vessels ready.

Excessive Cost

The cost of stevedoring(loading) is important. To be strictly accurate, the word "transfer" is applied to the movement between the ship and the wharf, and nothing else. Stevedoring includes moving to the picking-up place, transfer and stowage in the ship. We are considering it here in broader aspects, but the transfer charges, that is, the stevedore charges, are very high at most American ports where mechanical appliances are not used. The transfer charges between a Lake carrier and a Canal carrier at Buffalo averages about $1.00 a ton. At New York the average for a number of vessels showed a charge of $2.15 a ton for stevedoring to which other items of handling are important additions. New lake ports properly designed, with proper mechanical equipment and organization, should transfer for $1.00 a ton even at the prevailing high rate of wages.

What Congestion Costs

At New York the railroads suffer heavily. They tax the shippers throughout the country by increasing freight rates in order to pay for the cost of handling goods through New York. Three years ago it was estimated that it cost the railroads an average of $35 a car to move a car from the Jersey meadows to Manhattan. What it costs now nobody knows. Montreal and New Orleans with their belt systems switch a car to any point for $5. Of course, New York itself is a congested area, and the metropolitan district represents a population about equal to that of all of the three kingdoms of Scandinavia. In addition to mere population figures it must be considered that the purchasing power of the New York area is very much greater than that of Scandinavia. Therefore, the convergence of traffic at New York, excluding exports, and just for local needs, is very great. This congestion, due to the volume of commerce outrunning facilities, and to the lack of proper layout in the beginning, leads to a cost to the railroads of some $60 to $80 a car to handle through that terminal.

Examples of Charges

If railroad freight could always come directly from the railroad car to alongside the vessel by lighter, the system of lighterage as practiced at New York would not be so bad, because the higher cost is offset by the complete flexibility of the lighter service. But when export freight has to go to the warehouse, the real trouble commences. We have reckoned the cost to the steamship company by the delay of the vessel, and the cost of transfer or stevedoring, and also the cost to the railroad. Now let us look for a moment at the expenses to the shipper. Warehousing is an essential part of the process for most export merchandise. A large part of export goods should go to a warehouse for certain handling, recoopering, marking, repacking, etc.

Four of the examples that I have given elsewhere before show the following figures:

Example one: A shipment of 6 barrels of tumblers, valued at $25.92 at the factory, on which cartage and overtime charges in New York were $16.20, or about two-thirds of the total value.

Example two: Twenty cases of crepe paper, worth $227.50 at the factory, for which the cartage and overtime at the pier amounted to $50, or about one-fourth.

Example three: Eight crates of drums, worth $35 at the factory. The railroad freight to New York was $0.96, but the cartage from rail to warehouse, and warehouse to steamer, was $12, or about one-third of the value of the goods put down in New York.

The fourth example is a shipment of toys. The value of the merchandise at the factory was $272. The rail freight to New York was $22, while the cost of cartage and delay in New York was $92.25, or considerably more than one-third of the value of the merchandise at the factory.

The following is an extract from a letter written June 11, 1920 by the manager of the New York office of the Bureau of Foreign and Domestic Commerce:

"Among other information gathered in the course of the conferences was the fact that in these days the trucking companies, do not wish to handle single case lots, inasmuch as they are always handled at a loss. The result is that except in very important shipping instances, the shipping of single case lots is held up until six or ten cases can be delivered at the same pier or railway terminal at one time. This often means a considerable delay in shipping, but as the time consumed in making a delivery is just as great no matter what size shipment is made, the trucking people are unwilling to go to any greater expense than they are necessarily compelled to do.

"The average price for teams is seven to ten dollars per day and pier deliveries are handled only five days in the week. In recent times, in order to make any sort of a fair delivery, trucks are loade d between 6 p. m. and midnight. The men who handle these trucks report for duty at 3 a. m. and take them to the lines which are waiting entrance to the piers, and they may be in line all day waiting their turn. At best they will not return before three or four o'clock in the afternoon. All the time between 3 a. m. and 8 a. m. is paid for at overtime rates. Mr_____cited one instance that happened within the last week of a five-case lot going to Havana, Cuba. The truck made trips for four different days before the lot was accepted at the pier. The first day it reached the line at the pier about 4 p. m. and the driver was told that he was too late. The next day the truck arrived at 1 p. m., waited in line until five and then was told his lot would not be accepted that day. He made two more trips, and on the last trip spent practically the entire day in line."

Regarding overtime in cartage charges, another dry goods commission merchant at New York writes concerning waiting time. Between December 2 and December 27, 1919, this commission merchant had occasion to make 27 shipments. In one month these 27 shipments showed a total overtime charge of 55 hours. Over time is the time after 6 o'clock p. m. and until 8 a. m. Thsi particular merchant writes as follows:

"The overtime hours do not in themselves indicate the number of hours our trucks spent on the piers awaiting unloading, but merely cover the hours spent after 6 o'clock. Many of these trucks have reached the docks as early as 10 o'clock in the morning and remained there until 10 or 12 o'clock at night, and where they have reached the docks as late as 4 o'clock in the afternoon, they have, in a few instances, been compelled to wait until the early hours of the morning to unload."

Very Attractive Margin

All these difficulties may be avoided and in addition a saving before not realized at any American port can be accomplished by the proper terminal development that will reduce transfer and transhipment costs. Add together the excessive rail cost to New York and the excessive transhipment cost at New York, or add together the cost of transhipment at Buffalo between a lake and a canal carrier, the lake-canal freight charges, and the cost of transshipment at New York, and these

totals will be so high than any well organized lake port should have a very attractive margin indeed. They will be attractive to the railroads because they would get their cars released quickly, and to the shippers because he would be spared all this unnecessary expense, and also to the steamship company because of the time such terminals would serve him in port.

Quicken the Turnaround

The argument is made that the ships would have to go so far, 'way up through the St. Lawrence, to get into the Great Lakes, that any port expense saving would be consumed by the excessive time and costs of operation. It would cost the ships so much time that it would still be better still to pay the high charges at New York. Whoever makes this argument has been looking at a Mercator's projection instead of a polar hemispheric projection and never measured the sailing distances on the globe. Montreal is so much nearer Liverpool and London than New York that a vessel could land at Erie, Pa., in about the same time and for about the same sailing distance as at New York. For the saving of five days in the turnaround the same ship could go clear on to Duluth or Chicago as easily as to New York and wait for a berth.

European Distances

Charts for full-powered steam vessels prepared by the Hydrographic Office, United States Navy, show some extremely interesting figures. Montreal and New York are almost exactly the same distance from Gibraltar, and the distance from New York to London is a little farther than from New York to Gibraltar. The point is this: It is about as near by water from the lake ports to Montreal as it is by rail to New York, but once in Montreal it is no farther by water to Gibraltar than it is from New York to Gibraltar and to all the ports of the Mediterranean and the Black Sea. All of southern Europe, North Africa, the Near East, South Russian and India, are just as close to the Great Lakes ports by the all-water route as by the rail-and-water route via New York.

When one considers the North Sea and Baltic Sea ports, all of the rich area of northwestern and northern Europe and Russia, the advantage is distinctly in favor of the St. Lawrence route by several hundred miles. Therefore, if port expenses and dispatch are equal, once the St. Lawrence is opened, the Great Lakes ports would have an advantage over New York in time and distance to all northern Europe and the British Isles, and an equal chance to southern Europe, north Africa, the Near East and India. But, considering the enormous cost of getting goods through the congested port of New York and the possibilities of building absolutely modern ports on the Great Lakes, the potential advantages to lake-coast shippers through the St. Lawrence are so enormous that there is simply no room for argument.

To Create New Traffic

This does not mean at all that the traffic that will go out through the opened St. Lawrence will be traffice that is taken away from New York. On the contrary, it will be largely traffic that New York never can get, because the merchandise at present cannot bear the cost. It will be new business entirely. The idea that the opening of the St. Lawrence will take traffic away from New York is upon the same plane with the old argument of the stage-coach drivers between New York and Philadelphia against the railroads. They said they could not keep their stage-coaches full, so how could anybody expect to make a railroad pay. It is the same old argument of all the artizans of the Industrial Revolution in England, the weavers who destroyed Arkwright's power loom. There are more weavers weaving today and at tremendously higher wages than ever could have been earned from the old hand-loom process before Arkwright's invention. The same thing applies to the linotype machine. The typesetters made a terrible howl and felt that the linotype would throw them all out of work. There may have been a little readjustment at the moment that was unpleasant, but there are more hand compositors today than there ever were before the linotype was introduced, and, in addition, there are thousands and thousands of linotype operators. It created its own new business and stimulated the old business. In the case of New York, commerce is held in check because it has outgrown the facilities of the port. The new route will develop the North Central United States to such an extent that New York will still be congested and will be kept busy for many years trying to catch up with the demands made upon it. Also, the season of closed navigation on the Lakes, the usual light period at New York, will find New York and other Atlantic and Gulf ports working overtime to take care of the overflow.

Benefits to New York

The same holds good regarding the future of the magnificent New York State Barge Canal. By the figures of the Superintendent of Public Works, Gen. Wotherspoon, calculated several different ways, the territory adjacent to the canal should supply equal tonnage to 1½ to 2 times calculated capacity of 10,000,000 tons. Statistics show that 73 per cent of the traffic is way traffic, or local traffic, and only 27 per cent through traffic. This through traffic leaves very little money in the state. On the other hand, when the now empty banks of the new Barge Canal are lined with new industries the State will be greatly enriched, and the canal carrying the freight to capacity. Think of the inducement to locate on this new canal. The St. Lawrence water will furnish abundant cheap power, the rail connections are excellent, and the canal provides cheap water transportation to the plants' canal doorway, with access to the great New York and Great Lakes markets and with seaports at Buffalo, Rochester, Oswego, Albany and New York for overseas shipments. The revival of lake shipping and the cheap hydro-electric power are the two things needed to make the new canal the unqualified success its excellence deserves. The New York State Barge Canal will be the greatest beneficiary by the St. Lawrence project.

Port Organization Needed

Organization of the lake ports, as has been intimated, is a necessary corollary of this development. In general we have been talking about the physical layout of a port, and it must be remembered that the merchant organization at a port is just as important. We may have a port that is perfect physically, with all equipment, but unless there are the banks, the forwarding houses, and other merchant organizations to take care of the traffic through that port its physical equipment will not be of great consequence. The two together once perfected, the port must be "sold" to the shipper and the advantages to him shown in dollars and cents.

Properly arranged warehouses, under the proper jurisdiction, are a strong aid to the financing of shipments. If warehouses are so built as to give the banker who will lend money on a warehouse receipt assurance that he is protected against fire, theft, or fraud, he will be able to make the loan and ask lower discount rates for it. The financing of shipments throguh a warehouse receipt can, therefore, be materially faciliated by the proper organization of the port, both physically and in its administration and supervision.

Another aspect of the credit situation is the fact that the proper type of terminal facilities will avoid "frozen" credit due to embargoes, merchandise being held on the track for months, and all those other phenomena with which we are only too painfully familiar at the present time.

A Civic Responsibility

But the warehouses on the Great Lakes will have an exceptionally important function because of the period of closed navigation. On an average, for 215 days a year there will be open traffic through the St. Lawrence. For the other 150 days the lakes will be closed to traffic. During the latter period the shipper or manufacturer has two alternatives. He can ship by rail, or he can pile up stocks in the warehouses ready for shipment as soon as navigation is open. He will probably do both, and that is another argument why the warehouses should be ample in accommodation and why the railroad facilities should be such as to give complete flexibility to movement of goods in and out of the warehouse by rail or water. I cannot refrain from repeating over and over again the warning of the seriousness of abandoning the development of any lake ports to the uncertainty of private initiative. The port must be one unit and for all, from its construcion and design to its full utilization.

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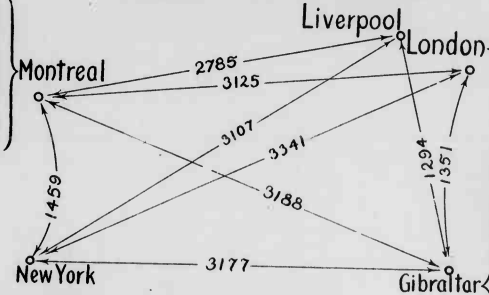
Comparison of Sailing Distances.*
North Atlantic
(* Hydrographic Office of the U.S.N.)

Statute Miles		Nautical Miles
1339	Duluth	1162
1246	Chicago	1082
1181	Milwaukee	1027
612	Detroit	532
528	Cleveland	459
433	Erie	376
390	Buffalo	340
227	Oswego	198



	Via Kiel	Via Skagerak
Copenhagen		704
Danzig	760	1172
Riga	988	1400
Helsingfors	1064	1476
Petrograd	1209	1621

Barcelona	516
Marseilles	693
Genoa	860
Naples	982
Malta	990
Trieste	1591
Port Said	1925
Constantinople	1823

		To
Odessa	2170	347
Rostof	2458	625
Novorossisk	2279	454
Batum	2408	585

Rail Distances, Statute Miles

London to	Paris	185	
" "	Marseilles	536	
" "	Naples	1349	
" "	Constantinople	2176	

New York To	Buffalo	443
" "	Cleveland	584
" "	Detroit	
" "	Chicago	912
" "	Milwaukee	997
" "	Duluth	1397

H.S.H. 29157

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TITLE